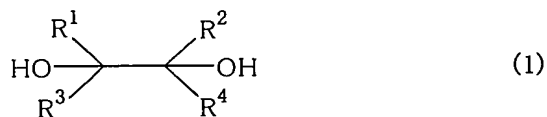


CLAIMS

1. A process for the production of carbonyl compounds, characterized by reacting a diol represented by the formula (1);



5 wherein R^1 , R^2 , R^3 and R^4 are the same or different, and independently represent a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted acyl group, a substituted or unsubstituted alkoxy carbonyl group, a substituted or unsubstituted aryloxy carbonyl group, a substituted or unsubstituted aralkyloxy carbonyl group, carboxyl group or a hydrogen atom, or R^1 and R^2 or R^3 and R^4 are bonded together with the carbon atoms to which they are bonded to form a ring, provided that all of R^1 , R^2 , R^3 and R^4 are not hydrogen atoms simultaneously; with bromine or an inorganic bromine compound in the presence of a trivalent bismuth compound and a base to form carbonyl compounds represented by the formula (2);



20 wherein R^1 and R^3 are as defined above; and the formula (3);



wherein R^2 and R^4 are as defined above.

2. A process for the production according to claim 1, wherein the trivalent bismuth compound is a triaryl bismuth compound.

3. A process for the production according to claim 1, which is characterized in carrying out the reaction in the presence of an amide compound having at least one hydrogen atom on the nitrogen atom, or an imide compound having at least one hydrogen atom on the nitrogen atom.

4. A process for the production according to claim 1, which is characterized in mixing previously a part of the diol represented by the formula (1), the bismuth compound and the base, and adding the remaining diol represented by the formula (1) and bromine or the inorganic bromine compound to the resulting mixture simultaneously.

5. A process for the production according to claim 3, which is characterized in mixing previously a part of the diol represented by the formula (1), the bismuth compound, the base, and the amide compound having at least one hydrogen atom on the nitrogen atom or the imide compound having at least one hydrogen atom on the nitrogen atom, and adding the remaining diol represented by the formula (1) and bromine or the inorganic bromine compound to the resulting mixture simultaneously.

6. A process for the production according to claim 2, wherein the triarylbismuth compound is triphenylbismuth, tri(2-methoxyphenyl)bismuth, tri(4-methoxyphenyl)bismuth, trimesitylbismuth or tri(4-fluorophenyl)bismuth.

7. A process for the production according to claim 3, wherein the amide compound having at least one hydrogen atom on the nitrogen atom, or the imide compound having at least one hydrogen atom on the nitrogen atom is acetamide, N-methylacetamide, ethanamide, propanamide, benzamide, N-methylbenzamide, succinimide, phthalimide, or

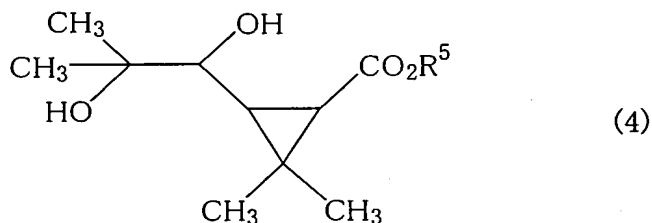
1,2-cyclohexanedicarboxyimide.

8. A process for the production according to claim 1, wherein the inorganic bromine compound is bromine chloride or phosphorus tribromide.

5 9. A process for the production according to claim 1, wherein the base is an alkali metal carbonate or alkali metal hydroxide.

10. A process for the production according to claim 9, wherein the base is potassium carbonate.

10 11. A process for the production according to claim 1, wherein the diol represented by the formula (1) is a compound represented by the formula (4)



wherein R^5 represents a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group or a substituted or unsubstituted aralkyl group.

12. A process for the production according to claim 6, wherein R^5 is i) a linear, branched or cyclic alkyl group having 1 to 20 carbon atoms, or ii) an aralkyl group which may be substituted with at least one group selected from a) a halogen atom, b) an alkyl group, c) an alkoxy group, d) an alkoxyalkyl group and e) an aryloxy group.

13. A process for the production according to claim 6, wherein R^5 is i) a methyl group, or ii) a benzyl group which may be substituted with at least one group selected from a) a halogen atom, b) a methyl group, c) a methoxy group, d) a

methoxymethyl group and e) a phenoxy group.